

## ABSTRACT OF DISCLOSURE

A linear compressor having a core combined to one end of a piston to detect a position of the piston reciprocally moving up and down. A first sensor coil and a second sensor coil detect the position of the core. The core has an upper core having a length shorter than one half of the length of the first sensor coil and a lower core having a length shorter than one half of the length of the second sensor coil in series. A method of controlling the operation of the linear compressor includes timing the upper core and the lower core driven by the piston through a stroke cycle, receiving the time and calculating a top dead center position based on the time or an offset value respectively, and controlling a piston stroke by varying the power driving the linear compressor according to the calculated top dead center or offset value.